

What is claimed is:

1. A reactor for generating moisture, comprising:

a reactor shell with an inlet side and an outlet side, said reactor shell comprising:

a reactor structural component on the inlet side; and

a reactor structural component on the outlet side;

wherein an interior space is formed with said reactor structural component on the inlet side and said reactor structural component on the outlet side disposed opposite each other and joined together by welding;

a gas feed port engaged with said reactor structural component on the inlet side;

a moisture gas take-out port engaged with said reactor structural component on the outlet side;

an inlet reflector disposed on the inside wall of said reactor structural component on the inlet side, positioned opposite to said gas feed port in the interior space of the reactor;

an outlet reflector disposed on the inside wall of the said reactor structural component on the outlet side, positioned opposite to said moisture gas take-out port in the interior space of the said reactor; and

a platinum coat catalyst layer formed on the inside wall of said reactor structural component on the outlet side;

wherein hydrogen and oxygen are fed into the interior space of said reactor through said gas feed port and brought into contact with said platinum coat catalyst layer to activate the reactivity of the hydrogen and oxygen, thereby reacting hydrogen and oxygen into water in a non-combustion state.

2. A reactor as defined in claim 1, wherein a round recession with a flat bottom is formed on inside walls of said reactor structural component on the inlet side and said reactor structural component on the outlet side; wherein a tapered portion is

formed at peripheral edge portions of said inlet reflector facing the inside wall of said reactor structural component on the inlet side and said outlet reflector facing the inside wall of said reactor structural component on the outlet side; and wherein a gap is formed between said inlet reflector and the inside wall of said reactor structural component on the inlet side, and a gap is formed between said outlet reflector and the inside wall of said reactor structural component on the outlet side.

3. A reactor for generating moisture, comprising:

a reactor shell with an inlet side and an outlet side, wherein said reactor shell comprises:

a reactor structural component on the inlet side; and

a reactor structural component on the outlet side;

wherein an interior space is formed with said reactor structural component on the inlet side and said reactor structural component on the outlet side disposed opposite to each other and joined together by welding;

a gas feed port engaged with said reactor structural component on the inlet side;

a moisture gas take-out port engaged with said reactor structural component on the outlet side;

a reflector positioned opposite said gas feed port and said moisture gas take-out port in the interior space of said reactor; and

a platinum coat catalyst layer formed on the inside wall of said reactor structural component on the outlet side;

wherein hydrogen and oxygen are fed into the interior space of said reactor through said gas feed port and brought into contact with said platinum coat catalyst layer to activate the reactivity of the hydrogen and oxygen, thereby reacting the hydrogen and oxygen into water in a non-combustion state.

4. A reactor as defined in claim 3, wherein a round recession with a flat

bottom is formed on the inside walls of said reactor structural component on the inlet side and said reactor structural component on the outlet side; wherein the outside diameter of said reflector is slightly smaller than the inside diameter of the recession; wherein a taper is formed on the peripheral edge portion of said reflector on the side facing said reactor structural component on the outlet side; and wherein a gap is formed between said reflector and the inside wall of said reactor structural component on the outlet side.

5 5. A reactor as defined in either claim 1 or claim 3, wherein said platinum coat catalyst layer comprises a non-catalytic barrier coat and a platinum coat.

10 6. A reactor as defined in either claim 1 or claim 3, wherein said reactor further comprises a non-catalytic barrier coat formed on parts not provided with the platinum coat catalyst layer in the interior space of said reactor and on said reflectors.

15 7. A reactor as defined in anyone of claims 5 or 6, wherein said barrier coat is formed of a component selected from the group consisting of TiN, TiC, TiCN, TiAlN, Al₂O₃, Cr₂O₃, SiO₂ and CrN.

8. A reactor as defined in claim 1 or claim 3, wherein said gas feed port is provided with a material gas mixing and feeding unit for feeding a mixed gas of hydrogen and oxygen.

20 9. A reactor as defined in claim 8, wherein said material gas mixing and feeding unit comprises a hydrogen feed pipe for feeding hydrogen, an oxygen feed pipe for feeding oxygen and a connector for joining the downstream ends of the two feed pipes and connecting the feed pipes to said material gas feed port; and wherein the connector formed of a plurality of small-diameter pipe sections and large-diameter pipe sections, and that small-diameter and large-diameter pipe sections are alternated to form

a pipe.

10. A reactor as defined in claim 1 or claim 3, wherein said reactor further comprises a temperature regulator for heating and maintaining the temperature at a specific level; and wherein said temperature regulator is provided on the outside
5 walls of said reactor structural component on the inlet side and said reactor structural component on the outlet side.

11. A reactor as defined in claim 10, wherein said temperature regulator is provided with a cooler for cooling said reactor shell.

12. A reactor as defined in claim 11, wherein said cooler is cooling fins
10 fixed on the outer surface of said reactor shell.